Education in Canada: current issues

Background Paper

BP-386E

EDUCATION IN CANADA: CURRENT ISSUES

Helen McKenzie
Political and Social Affairs Division

May 1994

Library of Parliament
Bibliothèque du Parlement

Research Branch

The Research Branch of the Library of Parliament works exclusively for Parliament, conducting research and providing information for Committees and Members of the Senate and the House of Commons. This service is extended without partisan bias in such forms as Reports, Background Papers and Issue Reviews. Research Officers in the Branch are also available for personal consultation in their respective fields of expertise.

Available in Canada through
your local bookseller
or by mail from
Canada Communication Group -- Publishing
Ottawa, Canada K1A 0S9

Catalogue No. YM32-2/386E
ISBN 0-660-15883-3

CE DOCUMENT EST AUSSI PUBLIÉ EN FRANÇAIS

TABLE OF CONTENTS

CANADA

LIBRARY OF PARLIAMENT
BIBLIOTHÈQUE DU PARLEMENT

EDUCATION IN CANADA: CURRENT ISSUES

INTRODUCTION

As the basis of wealth in developed nations shifts from natural resources and manufacturing to knowledge, achieving higher levels of popular education becomes increasingly important. In Canada, as in many other countries, there is concern that the existing education systems are not adequately meeting the challenges of the complex modern world. This concern persists, despite the fact that Canada's post-secondary enrolment rates are among the highest in the world.

The average number of years of schooling of adult Canadians increased steadily during the past few decades; between 1971 and 1986, the percentage of Canadians aged 15 or older with a university degree doubled, from 4.8% to 9.6%.[1] Encouraging as these facts may be, there is nevertheless a popular perception that the quality of education has been eroded, that many students graduating from high school are not adequately prepared in fundamental aspects of learning, and that many university graduates may not be well enough equipped to compete internationally. There are continuing problems relating to the accessibility of higher education for some individuals, and growing financial challenges for institutions and students.

Concerns relate to the whole continuum of formal learning systems, from primary schools to universities. Weaknesses in the quality of primary and secondary education are reflected in, for example, the incidence of functional illiteracy among high school students and graduates, the frequency with which students drop out of programs, and the perceived inadequacy of the teaching of mathematics and sciences.

---

(1) Canada, Department of the Secretary of State of Canada, *Profile of Higher Education*, Minister of Supply and Services Canada, 1991 Edition, p. 25.

In spite of high university enrolment rates, post-secondary education remains inaccessible to some disadvantaged groups. There is also a growing public anxiety that higher levels of learning will be generally restricted in future as a result of declining financial support from governments and increasing costs to individual students.

Many educators and employers, concerned with the quality of education and need for consistency across the country, have urged the implementation of national guidelines and reforms and interprovincial standardization. Some state that the goals of formal education must be clarified before any overall strategy can succeed. Others advocate a mechanism for strong central direction, so that Canada can keep pace with international trends and market-place requirements. Many argue for greater financial support from the federal government.

Canada's constitutional provisions, however, place education within provincial jurisdiction. Progressive change, therefore, can be achieved in this context only through a national strategy designed in a spirit of cooperative federalism. This paper briefly discusses the practice, responsibilities and limitations of the federal government in educational matters, and some of the major public concerns with respect to accessibility, quality and funding.

THE ROLE OF THE FEDERAL GOVERNMENT

Although the Constitution places education within provincial jurisdiction, it has long been recognized that its economic implications have made it also a matter of serious concern to the federal government. In 1965, the Economic Council of Canada reported that about one-quarter of the real growth in personal income over the previous decades resulted from higher levels of education.(2) Since that time, many economic and societal changes have created needs for new directions in learning.

This country, unlike many others, does not look to a central bureau of education for guidance in the development and pursuance of a national strategy; instead, 10 distinct provincial and territorial education systems have developed which discuss common interests in

---

(2) Economic Council of Canada, *Second Annual Review: Towards Sustained and Balanced Economic Growth*, Queen's Printer, Ottawa, 1965.

a unique institution, the Council of Ministers of Education Canada (CMEC). This has played a pivotal role in the cooperative development of policies to meet some of the changing needs of education in Canada and to encourage progress toward its standardization and improvement.

The continuance of cooperative efforts is essential for the future. One educator has identified the crisis of Canadian federalism as the most important issue affecting higher education today. How Canada and the provinces respond to this crisis will affect the future of higher education and Canada's ability to meet the challenges of international competition. The same commentator has suggested the establishment of a quasi-governmental mechanism to develop institutional performance indicators and to analyze national policy issues.(3)

The federal government, however, plays a crucial role in some aspects of education, providing financial support touching all levels of learning, both directly, for specific and limited purposes, and indirectly, through grants to provincial and territorial governments for higher education.

Canada has direct responsibility, for example, for the provision of education for armed services personnel, penitentiary inmates, and registered Native Canadians. The central government's participation in educational efforts has been linked to the national interest in defence, corrections, immigration, and vocational and second language training. Federal support is provided for university research, student assistance, official languages education, and miscellaneous other programs, such as Canadian studies, literacy training, and international education.

The central government's greatest impact on education has perhaps been through its role as provider of indirect funding under the Established Programs Financing (EPF) arrangements and the Official Languages in Education Program, whereby unconditional EPF transfers go annually to the provinces for health services and post-secondary education.

In 1992-93, federal government overall expenditures in support of education and training in Canada were estimated at about $12.2 billion. The total combined support for all

---

(3) David M. Cameron, "The Framework for Managing and Financing Post-Secondary Education in Canada," *The Forum Papers*, National Forum on Post-Secondary Education, 1987, Institute for Research on Public Policy, Halifax, 1988, p. 17; and David M. Cameron, *More than an Academic Question: Universities, Government and Public Policy in Canada*, Institute for Research on Public Policy, Halifax, 1991, p. 60.

levels of education from government (federal, provincial and local) and non-government sources was estimated at $55.3 billion.(4)

ISSUES OF CONCERN

The public financial investment in education appears to have produced only mediocre results from the labour-market standpoint, according to some indicators of performance.(5) Clearly, what is important is not only the amount of expenditures but how they are used.

Some experts have criticized the system of federal EPF transfers to the provinces, made without directions or guidelines, as lacking in purpose and effectiveness. They stress the need for consensus on the goals of education in Canada, for clarification of the federal government's role and for appropriate institutional structures to balance the demands of the labour market with the interests of individual students and the goal of the pursuit of knowledge, both general and research-related.(6) Speakers at the 1987 National Forum discussed the accessibility, quality and financing of education in a situation where institutions, disciplines and interest groups tend to compete for dwindling financial resources without the benefit of a clearly defined purpose.

In spite of Canada's establishment of a network of public education systems with wide accessibility, questions have arisen about their focus, quality and effectiveness. Why, for example, do large numbers of high school students choose to discontinue their studies? How extensive and effective are programs offering work-related training for those who do not attend university?

In its 1992 study, "Education and Training in Canada," the Economic Council of Canada concluded that many young Canadians are not well served by their education system and

---

(4) Canada, Human Resources Development Canada, *Profile of Post-Secondary Education in Canada*, Minister of Supply and Services Canada, 1993 Edition, p. 27; see Chart 7.1, Appendix.

(5) Canada Communication Group, Research Report, 1992, p. 109.

(6) See, for example, Cameron (1991), p. 438, and Cameron (1988), p. 7-9.

that the 70% of school leavers who do not go on to university lack pragmatic technical and vocational programs to prepare them for the workforce. Canada's school system does not have non-academic, vocational programs as an optional study path or an appropriate strategy to help students to make a successful transition from school to the workplace.

The demand for programs directed toward labour-market requirements may be expected to continue to grow in the coming years. Labour-market reviews have shown that employers increasingly require more educated and flexible workers. The results of a social survey published in 1992 indicated that of about 14% of the workforce enrolled in an educational program leading to a degree, diploma or certificate, about half were taking courses to improve or change their careers.(7)

Important as it is, preparation for the labour force is only one of several objectives of a mature education system. Though the emphasis appears to have shifted in recent years toward economic considerations, the traditional ideals of the civilizing, socializing, and inspiring nature of education persist. The most appropriate goals to an extent, therefore, remain open to interpretation. There is, nevertheless, a general expectation that education should be reasonably accessible and of good quality, while addressing the most important needs of young people and the society in which they live. In addition, there is a growing awareness of the practical necessity for education systems to be not only effective, but efficient in terms of cost.

A. Accessibility

Elementary and secondary schooling are available free to all Canadian children, and greater numbers of students than ever are achieving high school graduation and attending universities. Full-time enrolment in post-secondary institutions more than quadrupled between 1960 and 1985, partly as the result of the growth, for a period, in the 18-24 age group but also, particularly in the 1970s, because there was a marked increase in the number of women participating in higher education.

---

(7) Statistics Canada, *Perspectives on Labour and Income*, Catalogue 75-001E, Autumn 1992, p. 51, and Spring 1993, p. 14.

During the 1980s, full-time university enrolment increased annually, reaching 532,100 in 1990-91, a growth of 39% from 1980-81. The median number of years of schooling of adult Canadians increased from 11.3 in 1976 to 12.2 in 1986.[8]

Although the 18-24 age group declined as a percentage of the population in the past decade, university enrolment continued to increase. In 1991, about 14% of the Canadian labour force consisted of individuals with a university degree, while in 1993, 53% had some post-secondary education.[9] An international report based on 1988 data revealed that of the countries studied, Canada had the highest proportion of youth between 20 and 24 enrolled in colleges and universities.[10] In 1991-92, there were 1.4 million post-secondary students (full- and part-time) in this country. The number of full-time students was higher than ever, reaching nearly 548,000 in universities and almost 331,000 in community colleges.[11]

Some, including people living in poverty, residents of isolated and northern regions, and disabled students, still face obstacles to higher education. There are indications, as well, that the future accessibility of higher education for many other individuals is at risk as a result of tightening economic constraints and restricted government funding. Tuition fees and other university costs are increasing at the same time as students are having more difficulty in finding employment to finance their studies.

There is some reason for hope that the private sector, recognizing its stake in higher education, will develop new means to assist students. One bank, for example, is reported to have introduced an arrangement for student loans at a discount rate, with repayments other than interest starting only six months after graduation.[12] The public sector, however, remains

---

(8) Statistics Canada, *Education in Canada, A Statistical Review for 1990-1991*, Catalogue 81-229, Ottawa, 1992, p. 15.

(9) *Profile of Higher Education* (1991 Edition), p. 26; *Profile of Post-Secondary Education in Canada* (1993 Edition), p. 24.

(10) World Economic Forum, *The World Competitiveness Report*, 1992.

(11) Canadian Centre for Policy Alternatives, *Canada's Education Crisis*, Ottawa, 1993, p. 3.

(12) *University Affairs*, October 1993, p. 21.

the main source of student assistance and the federal government is planning reforms to student aid as part of its program restructuring.

1. Student Loans

The Canada Student Loans Plan (CSLP) has been a major facilitating factor in the growth of post-secondary enrolment over the past three decades. Introduced in 1964, the plan superseded the more limited Dominion-Provincial Student Aid Program of 1939, for students of high academic merit. Under the CSLP, the federal government assumed responsibility for providing guaranteed loans to all qualifying applicants with demonstrated need, with the plan administered on a provincial basis. Quebec, and later the Northwest Territories, opted out of joint federal-provincial arrangements, establishing their own programs with parallel funding from the central government.

The CSLP has been described as a model of intergovernmental accommodation, an example of the operation of federalism at its best, with both national and provincial constitutional jurisdictions "respected and blended."[13] Developments in recent years, however, have raised questions about the plan's capacity to continue to make higher education accessible in the future. Revisions of the plan appear to be essential if the needs of students are to be met. The weekly loan limits, for example, have become unrealistically low in the face of rising tuition and other student costs. There is also a need for more consideration of the needs of part-time students, who account for almost one third of university enrolments.

Tuition fees at Canadian universities increased by 40% to 80% between 1985-86 and 1991-92. For undergraduate arts students, fees for 1992-1993 increased by 5% to 10% from the previous academic year, and for 1993-1994, by an average of 9%. These fees varied among institutions and provinces, and ranged from about $1,300 to $3,500 in 1992-1993.[14] It is expected that fees will continue to rise as universities attempt to cope with increasing expenses and restricted government support. The reasonable accessibility of higher education in the future, therefore, rests partly with a revised student loans plan.

---

(13) Cameron (1991), p. 122 and 438.

(14) Statistics Canada, *The Daily*, Catalogue 11-001E, 19 January 1993, p. 2, and 16 November 1993, p. 1.

Proposals for a new plan, with repayment based on earnings after graduation, were suggested by committees in the past as a cost-effective means of providing education support. In its 1991 Report, the Commission of Inquiry on Canadian University Education recommended replacement of the existing program with a new Income-Contingent Repayment Student Assistance Plan. It would make loans widely accessible, and repayable as a surtax on federal income tax when the borrower's income reached a certain level; thus, by linking repayment to earnings, the loan conditions would not be too onerous in the years after graduation.

The Canadian Federation of Students (CFS) has criticized this plan on the grounds that the financial burden of loans and their repayment would be distributed unevenly among students, depending on their future earnings, and would weigh most heavily on those with modest resources. Such a plan, the Federation warned in 1993, would threaten public post-secondary education as Canadians know it. The CFS has recommended instead the establishment of a national system of student grants to ensure equality of access to financial assistance.(15)

The Canadian Association of University Teachers (CAUT) has also called for more grants and bursaries rather than emphasis on student loans. The Association of Universities and Colleges of Canada has taken the position that loan limits should be increased and repayment made more flexible, and that a second income-contingent, repayment loan program for tuition assistance should be established.(16) In the spring of 1994, the federal government announced its intention to improve the student loans system.

The issue of accessibility, however, goes beyond plans for student loans or grants programs. The Economic Council of Canada, having noted the increased participation in post-secondary learning, concluded in a research report published in 1992 that, while "there is no pressing need to seek to increase the access of the majority of Canadians to higher education," some targeted programs may be appropriate. It warned that for many, "the goal of post-secondary attendance may in fact have been set aside even before a student entered high school."(17)

---

(15) "The Underfunding of Student Financial Assistance," in *Canada's Education Crisis* (1993), p. 31-32.

(16) "Looking for a Better System," *University Affairs*, May 1994, p. 14.

(17) Tim Sale, "The Funding of Post-Secondary Education in Canada: Can the Dilemma Be Resolved?" Working Paper No. 28, Economic Council of Canada, Ottawa, 1992, p. 37.

The school experience of children from low-income families, crucial in influencing their interest in and aptitude for higher education, may differ greatly among various groups. The particular problems of children who are handicapped and those from low-income, minority language or immigrant families, as well as the technological and other major changes in society, illustrate the need for flexibility and diversification in the provision of education.

2. Diverse Needs

Rapid technological developments, changing workplace requirements and our complex bilingual and multicultural society all create demands for a wider range of educational programs.

An increasingly mobile workforce must also deal with the persisting provincial differences in requirements and course material, teaching methods and age of mandatory school attendance. Even greater differences exist at the university level, where students often experience difficulties in transferring from one autonomous institution to another. The CMEC has for some years encouraged cooperative efforts to minimize the problems of students who move from one jurisdiction to another, but some problems remain.

Public education has been broadened over the years to include opportunities for students to achieve computer literacy, to learn and study in either official language, and to acquire a broad range of knowledge, but the accessibility of such opportunities varies across the country and is limited by financial constraints.

a. Computer Education

Technological change has created a need for a new kind of learning, "computer literacy," and has introduced new methods of program delivery. Computer competence has become an educational goal recognized by the inclusion of relevant programs in school curricula. These programs, however, are not yet extensive enough to meet all demands.

Canada's Steering Group on Prosperity recommended in 1992 that the use of information technologies in learning be expanded, that the number of computers in schools be

increased by 30% annually, that teachers be trained to use computers in their instruction, and that the use of computer-based approaches in literacy and skills upgrading be encouraged.[18]

b. Official Languages in Education

The federal government provides cost-sharing support for education in the language of the official language minorities and for opportunities to learn a second official language. More than 2,000 public schools across Canada now offer French immersion classes. Often, however, the choice of subjects offered at the secondary level is limited and competent teachers are in short supply. Federal spending priorities in recent years have also included the expansion of post-secondary services in French and appropriate teacher-education programs. The quality and accessibility of second language education, however, is uneven across the country.

c. Special Needs

Although education has become widely accessible, obstacles to full participation persist for, among others, students who are geographically isolated, members of many aboriginal communities, learners with disabilities, and children of immigrants with little knowledge of either official language.

One of the most challenging problems for Canadian education systems has been to find ways to accommodate students in the northern regions of the country, which include about half of the land area but only about 1% of the population. The development of distance education methods has greatly extended opportunities in these regions, but the potential of these methods has not yet been fully achieved.

The success of native children in the school systems has also been hindered in the past by the lack of aboriginal teachers and the absence of culturally relevant material and language in educational programs. A variety of measures have been implemented to help raise the achievement levels of these children while assisting them to maintain their cultural and linguistic heritage. In the Yukon, for example, native language instruction is offered during the

---

(18) "Inventing Our Future: An Action Plan for Canada's Prosperity," *Canadian Vocational Journal*, Fall 1992, p. 9-13 at p. 13.

first six years of schooling. Progress is also being made in native participation in program development as aboriginal communities across Canada assume greater control of their own education systems.

Federal funding has assisted in the post-secondary education of registered Indians and in the establishment of culturally relevant programs such as those at the Saskatchewan Indian Federated College, the first aboriginal-controlled, post-secondary institution in North America.[19] The January 1994 Throne Speech promised that additional funds would be made available for post-secondary education for First Nations people.

In recent years, many schools, particularly in metropolitan areas, have received large numbers of immigrant students who have little knowledge of either official language. The flexibility of systems and the ingenuity of teachers are challenged to find ways to meet the needs of these students while maintaining established standards. Provincial and municipal education authorities have attempted to accommodate multicultural diversity by monitoring educational materials for bias and by developing new resource materials with multicultural themes and strategies to train teachers to implement these concepts in the classroom. Providing adequate language training for immigrant students, however, remains an immediate and essential concern, to which some schools are developing innovative responses.

All provinces have made efforts to make education more accessible to students with physical or developmental disabilities. Some jurisdictions have attempted to integrate most special needs students into the public schools, although it has been suggested that discussion of the quality of their education, a crucially important issue for these groups, as it is for all students, has been "largely avoided."[20]

B. Quality of Education

In recent years, the quality of education in Canada has been questioned on several fronts. Some educators, employers, and others, have expressed concern that it has been eroded,

---

(19) Alexander D. Gregor and Gilles Jasmin, eds., *Higher Education in Canada*, Department of the Secretary of State, 1992, p. 51.

(20) R.S. Gall, in Leonard L. Stewin and Stewart J.H. McCann, *Contemporary Educational Issues: The Canadian Mosaic*, Copp Clark Pitman, Toronto, 1993, p. 303.

and that the existing systems are not adequate to maintain this nation's competitive position in the modern technological world.

This concern extends to all levels of education. Researchers for the Economic Council of Canada examined the quality of Canadian education in recent decades. They found that comparable data on Grades 4 and 8 achievement levels in 1966, 1973, 1980 and 1991 demonstrated "a deterioration between 1966 and 1973, a minor improvement between 1973 and 1980, and then another decline (to about the 1973 level) between 1980 and 1991."[21] A basic skills survey of Grade 8 students indicated that, although funding levels for education had increased, the performance of students had declined between 1966 and 1991.[22]

The Council likened schooling in Canada to a monopolistic industry, where less attention is paid to the quality of its product than would be the case in a competitive situation. Public concern has resulted in the reconsideration of education systems and efforts to reform them. During the past six years, most provinces and the territories have recognized the seriousness of problems relating to quality, including the high incidence of "dropping out" by high school students and the functional illiteracy of some senior students and graduates.

Some claim that child-centred teaching methods widely adopted to encourage creativity and interest in learning ignore the pursuit of excellence and risk neglecting the development of basic skills. Some provinces, taking a "back to basics" approach, have increased their emphasis on the teaching of core subjects and on testing. Others continue to view child-centred policies as the most appropriate approach to modern education.

Concerns about quality, however, must be considered together with those relating to equality of opportunity for students of different backgrounds or capabilities. With respect to class organization, for example, the tendency in the past was to keep students in the same type of schools but to divide them according to their demonstrated and perceived capabilities into different groups following advanced, general or basic programs of studies. This process is referred to as streaming.

---

(21) Economic Council of Canada, *A Lot to Learn - Education and Training in Canada*, Ottawa, 1992, p. 9.

(22) "Measuring Results in the Schools," *The Globe and Mail* (Toronto), 4 January 1993, based on Economic Council of Canada data on English language schools outside Quebec.

Some educators believe that many students feel stigmatized by the process of streaming and are thereby encouraged to drop out of school. Ideas of equality and inclusion have prompted recent efforts to discard streaming practices. Ontario, for example, de-streamed Grade 9 in 1993 as part of its new curriculum. Opponents of de-streaming, however, have argued that such measures may threaten the quality of education of the majority and the motivation of those students with the greatest potential.

While its relationship to the streaming process may be debated, the motivation of the student is essential for success in education. The Economic Council noted that motivation is critical for achievement, which in itself is a vital motivator.[23]

1. School Dropouts

The numbers of students who leave high school before graduation prompt us to question the quality of education in Canada. A Statistics Canada Survey in 1991 indicated a dropout rate of about 18% (22% for males and 14% for females).[24] In this survey of more than 9,000 youths aged 18 to 20, school-related factors, including boredom, were the most important reasons given for leaving school. In an earlier national survey, high school dropouts had frequently cited the lack of motivation and boredom.[25]

The 1991 study found that the early school leavers were not necessarily low achievers; 37% of them had A or B averages, and 40% had passing C grades. Their early departure, therefore, reflects a failure on the part of the existing systems to encourage and develop the potential learning capacity of many promising students who are therefore not equipped to succeed in the modern labour market. Without further education or training, they will be severely disadvantaged in the future, when about 40% of employment opportunities may be expected to require more than 16 years of education and training.[26]

---

(23) Economic Council of Canada (1992), p. 9.

(24) Mary Sue Devereaux, ed., *Leaving School*, Prepared for Human Resources and Labour Canada, Minister of Supply and Services Canada, 1993, p. 1 and 16.

(25) Campbell Goodell Consultants Limited, "A National Survey on the High School Dropout Situation," Prepared for Employment and Immigration Canada, 1990, p. 5-6.

(26) Devereaux (1993), p. 3 and 35.

Dropping out of school carries serious economic costs, not only to the individual but to the nation. Early leavers forgo the potential for increased earnings that graduation brings. The national cost is also high. Data on the 137,000 students who dropped out of school in 1989 suggest that the high school dropouts of one year cost the country more than $4 billion over their collective working lifetime.[27]

The challenge for educators and planners is to encourage positive attitudes toward education, and to provide learning systems that are effective and interesting. New approaches to teaching, such as cooperative education, provide some hope in this respect. In these programs, classroom theory is combined with work-related experience whereby students can acquire an increased awareness of workforce requirements and develop appropriate skills. Such "co-op" programs could help organized learning to seem more relevant to the lives of many students.

The persistence of varying degrees of illiteracy in our society also prompts doubts about the quality of our education systems. This problem is often related to early school leaving, but there are also indications of functional illiteracy among surprising numbers of high school graduates and even among individuals with some post-secondary education.

2. Illiteracy

Illiteracy became a major issue of concern in Canada in 1987 when it was reported that about five million Canadian adults were "functionally illiterate"; that is, they did not have reading or numeracy skills adequate to carry out routine tasks.[28]

During the 1980s, the unemployment rate of Canadian workers with fewer than the nine years of schooling generally considered essential to acquire functional literacy increased steadily; in 1990, it was 1.5 times the overall rate. Poor literacy skills are associated with unemployment, increase the difficulty of finding jobs and constitute a barrier to retraining.

---

(27) Eric Beauchesne, "Highschool Dropouts Cost Canada, and Themselves, Big Bucks: Report," *The Gazette* (Montreal), 12 May 1992.

(28) Peter Calamai, "Broken Words: Why Five Million Canadians are Illiterate," A Special Southam Survey, McLaren Morris and Todd Limited, Toronto, 1987.

The problem of illiteracy is complex and its extent in the population is difficult to measure. The Economic Council of Canada in 1992 reported that nearly one quarter of young Canadians were functionally illiterate and predicted that, without change, one million more handicapped in this way would be leaving school for the work force by the year 2000.[29] The Council warned that this situation threatens Canada's ability to compete internationally.

Provincial governments have taken measures to identify literacy problems and improve their schooling systems. With provincial cooperation, the CMEC has been working toward the establishment of Canadian educational achievement indicators and standards. As part of a national testing program, the School Achievement Indicators Program, the reading and writing skills of students aged 13 and 16 will be assessed during 1994. Other important aspects of education include mathematics and science.

3. Mathematics and Science Education

There are indications that mathematics and science, vitally important aspects of learning, are not dealt with adequately in Canadian schools. A survey of scientific literacy in 1990 indicated that most adults in this country had only a scant knowledge of science.[30] The fact that Canada has fewer engineers per capita than the United States or Japan may reflect the degree of emphasis this country has placed on science education.

A 1991 study found that nearly four out of ten Canadian adults were unable to do mathematical tasks or to follow complex written instructions. These inabilities are ominous; if Canadians are to adjust to changing market demands and international competition, they will need "the ability to apply scientific and mathematical principles in the workplace (and) to operate comfortably in a technological environment."[31]

In international comparisons of student achievement in science and mathematics, Canadian children at age 10 compared favourably with those of most other industrialized

---

(29) Economic Council of Canada (1992), p. 8-9.

(30) "Science Survey - Scores Low, Interest High," *University Affairs*, April 1990, Reporting a survey by Dr. Edna Einsedel, University of Calgary.

(31) Canada, Prosperity Secretariat, "Learning Well ... Living Well," Minister of Supply and Services, Ottawa, 1991, p. vii.

countries; however, by the time they had completed secondary school they had fallen behind.[32]

Two international assessments of educational progress in 1991 indicated that at age 13 Canadian mathematics students ranked only ninth among students from 15 countries, although Canadian spending on education was relatively high. A 1993 national test of mathematics confirmed that, with variation among the provinces, Canadian students achieved on average only moderate success.

The studies suggest that a root cause of this mediocre rating is the lack of specialist teachers; only 31% of the Canadian schools had teachers specializing in mathematics. Moreover, Canada placed only 14th with respect to the percentage of schools with teachers dedicated to teaching science most or all of the time.[33]

More attention must be paid to these disciplines and to the qualifications and capabilities of science and mathematics teachers. Skilful teaching in the earliest grades encourages the pursuit of these subjects throughout the school years. In Japan, where primary school students have generally performed well in these areas, the teachers are drawn from university graduates with high achievement levels in these specialties.

In Canada's universities, insufficient funding appears to contribute to lack of achievement in the sciences. Representations made in 1991 to the Commission of Inquiry on Canadian University Education warned that the lack of funds for modern equipment and laboratory courses was "a serious impediment to preparing students for the workplace."[34]

While there are growing concerns in Canada about the quality of education in mathematics and science, there are also shortcomings in education with respect to Canadian society, its history and development.

4. Canadian Studies

Education is more than a preparation for the workplace and a means to an economic end. In Canada, as in every other country, some knowledge of national history,

---

(32) Economic Council of Canada (1992), p. 7.

(33) "Canada Fails to Make Grade," *Chronicle-Herald* (Halifax), 8 April 1992.

(34) Commission of Inquiry on Canadian University Education, *Report*, Association of Universities and Colleges of Canada, Ottawa, 1991, p. 73.

geography, culture, and social issues is regarded as a necessary preparation for good citizenship, as a means of promoting national unity, and as a basis for self-development and for understanding this society and others. The Commission of Inquiry on Canadian University Education observed that historical consciousness is one of the accepted goals of higher education. Many students, however, graduate from university with only a very slight acquaintance with history and the social sciences.

There are indications that courses on Canadian history and government are often taught only superficially, and differently in various parts of the country, while social studies teachers are often not qualified to teach in that discipline.(35)

Nor, it seems, are these subjects or the field of education given much greater emphasis in institutions of higher learning. Indeed, in Canada's universities, the only two undergraduate areas that declined in relative numbers of students between 1970 and 1985 were education and the humanities.(36)

The CAUT has warned that the importance of the social sciences and humanities should not be underestimated. Noting that these studies, which help us to interpret the social and cultural impact of technological progress, have long been "the poor relation" in terms of federal funding, the Association urged that this situation be rectified. "We must also know ourselves - our history, literature, philosophy - if we are to have the self-confidence to compete as an equal player in the world economy."(37)

5. International Education

The OECD has declared that "internationalization," a process of integrating an international dimension into university functions, should be the new emphasis in higher education. Among other things, this process calls for curriculum changes to incorporate the

---

(35) Standing Senate Committee on Social Affairs, Science and Technology, *Proceedings*, 17 March 1992, p. 49, and 19 May 1992, p. A-19.

(36) National Forum Secretariat, "A Statistical Portrait of Higher Education in Canada," *The Forum Papers 1987*, The Institute for Research on Public Policy, Halifax, 1988.

(37) Canada, House of Commons, Standing Committee on Secretary of State, *Proceedings*, CAUT Brief, February 1988, p. 7.

experiences and knowledge sources of other countries and give students the opportunity to become "globally literate citizens." In recent years, some Canadian universities have been working toward this end.(38)

C. Financing Education

The largest portion of total spending on education is done at the elementary-secondary level, with provincial governments the largest direct source of funding. The major portion of federal support for post-secondary education is through the EPF, whereby funds are transferred unconditionally to the provinces and territories. In 1990-91, a five-year freeze on per capita transfer payments began, resulting in a 7.7% drop in cash transfers that year. The federal government in effect reduced its financial commitment to post-secondary education.(39)

In 1991, Canada spent 7.4% of its GDP on education, all levels included, compared with an OECD average of 6.1%. Earlier international comparisons had indicated that the level of education funding in this country to be one of the highest in the world, but a 1992 report of the Economic Council suggests that the perception of Canada as free-spending in the area of education should be modified:

> Per-student spending as a percentage of GDP is generous but not outstanding, by international standards. Canada spends more than Germany and Japan, but less than many other countries.(40)

In this respect, Canada's spending is about the average of the 16 nations surveyed. In recent years, Canada has relied increasingly on contributions from local governments and student fees.(41)

---

(38) Tim Lougheed and Ania Wasilewski, "The New Internationalism," *University Affairs*, March 1994, p. 6.

(39) *Canada's Education Crisis* (1993), p. 1-2.

(40) Economic Council of Canada (1992), p. 39.

(41) Statistics Canada, *Education in Canada: A Statistical Review for 1990-91*, Catalogue 81-229, Ottawa, 1992, p. 227 and 232; Statistics Canada, *Financial Statistics of Education, 1988-89*, Catalogue 81-208, Ottawa, 1993, p. 21.

Some experts believe that the role of the federal government is the most crucial issue for the future of education in Canada. There are fears that the gradual diminution of EPF funding may signal a change of direction away from federal support of higher education and research in general.

The CAUT and others have expressed concern that Canada's post-secondary education system is underfunded, with the existing level of spending perhaps inadequate to avoid an erosion of university facilities and standards. There have, for example, been complaints of overcrowded classrooms, dilapidated equipment and unacceptable student-faculty ratios in some universities. In addition, higher tuition fees and other student costs also raise issues of future accessibility.(42)

The current system of unconditional federal grants, while in accordance with constitutional principles, has been criticized by at least one expert as lacking in purpose and effectiveness. "Indeed, federal grants under the Established Programs Financing (EPF) arrangement serve no discernible purpose at all, an outcome reflected, in turn, in successive steps to hasten their demise."(43) This author has suggested that if, as it appears, the long-term policy of the federal government amounts to a gradual withering away of EPF support for post-secondary education, it should concentrate on financing research at post-secondary institutions and encourage university ties with industry, in order to promote Canada's global competitiveness.(44) It is difficult to see, however, how such policy could support even the current breadth of disciplines or, indeed, how higher education could thrive at all in Canada without continuing substantial financial support from the federal government.

---

(42) Rick Martin, "Campus Controversy: Students Have Had Enough," *Globe and Mail* (Toronto), 19 January 1993, and Andrea Hobden, "How Can Canadians Compete Globally If Our Barriers to Education Continue?" *Toronto Star*, 1 November 1993.

(43) Cameron (1991), p. 438.

(44) Douglas Brown, Pierre Cazalis and Gilles Jasmin, eds., *Higher Education in Federal Systems*, Institute of Governmental Relations, Kingston, 1992, p. 60, and see also Canada, Standing Senate Committee on National Finance, Report, *Federal Policy on Post-Secondary Education*, Minister of Supply and Services, Ottawa, 1987.

STRATEGIES FOR THE FUTURE

Although Canada has achieved a high standard of education, with wide accessibility and government financial support among the highest in the world, there are concerns that a period of erosion has begun - in funding, and perhaps in accessibility and quality - at a time when international competition has intensified. There is therefore an urgent need to identify significant goals and develop national strategies.

Is education to be viewed as an industry, producing graduates and potential employees as needed for professional occupations, business and industry? If so, the standards of excellence required may be adjusted by market forces. Alternatively, do the goals of education include learning of a wider nature, the development of critical thinking, a preparation for good citizenship, an understanding of cultures, history and moral values, and the encouragement of artistic and creative potential? In Canada, this broader view has generally been accepted in the past, with variations in emphasis. These objectives make the measurement of quality much more difficult but also encourage the development of different kinds of expertise to address future challenges, whether economic, societal, scientific or cultural.

Canada's education systems are continually subject to reassessment, evaluation and criticism. Some studies have indicated the need for more emphasis on teacher training. The Commission of Inquiry into Canadian University Education in 1991 recommended that education faculties in Canadian universities should receive more attention and respect.

The quality, process, and funding of education are vital issues that will continue to be questioned at various levels. The importance of finding, pursuing and funding the most appropriate strategies in response cannot be over-estimated. Historian Desmond Morton has reminded Canadians that, even in times of general economic difficulty, there remains "one pillar of ... prosperity which is very much ours to neglect or repair, undermine or strengthen: it is the provision of trained and educated intelligence."(45)

---

(45) Desmond Morton, "The Role of Universities in Economic Renewal," *Canadian Speeches: Issues of the Day*, March 1994, p. 60-63 at p. 63.

BIBLIOGRAPHY

Beauchesne, Eric. "High School Dropouts Cost Canada, and Themselves, Big Bucks: Report." *The Gazette* (Montreal), 12 May 1992.

Brown, Douglas, Pierre Cazalis and Gilles Jasmin, eds. *Higher Education in Federal Systems*. Institute of Governmental Relations, Kingston, 1992.

Calamai, Peter. *Broken Words: Why Five Million Canadians are Illiterate*. A Special Southam Survey, Southam Printing Limited, Toronto, 1987.

Cameron, David M. "The Framework for Managing and Financing Post-Secondary Education in Canada." *The Forum Papers*, National Forum on Post-Secondary Education in Canada, 1987. Institute for Research on Public Policy, Halifax, 1988.

Cameron, David M. *More than an Academic Question: Universities, Government and Public Policy in Canada*. Institute for Research on Public Policy, Halifax, 1991.

Campbell Goodell Consultants Limited. *A National Survey on the High School Dropout Situation*. Prepared for Employment and Immigration Canada, 1990.

Canada Communication Group. *Research Report*. Ottawa, 1992.

Canada, Department of the Secretary of State. *Profile of Higher Education in Canada*, Minister of Supply and Services Canada, 1991 Edition.

Canada, Human Resources Development Canada. *Profile of Post-Secondary Education in Canada*. Minister of Supply and Services Canada, 1993 Edition.

Canada, Prosperity Secretariat. "Learning Well ... Living Well." Minister of Supply and Services, Ottawa, 1991.

Canada, Standing Senate Committee on National Finance. *Federal Policy on Post-Secondary Education*. Minister of Supply and Services, Ottawa, 1987.

Canada, Standing Senate Committee on Social Affairs, Science and Technology. *Proceedings*. 17 March 1992 and 19 May 1992.

Canadian Centre for Policy Alternatives. *Canada's Education Crisis*. Ottawa, 1993.

"Canada Fails to Make Grade." *Chronicle-Herald* (Halifax), 8 April 1992.

Commission of Inquiry on Canadian University Education. *Report*. Association of Universities and Colleges of Canada, Ottawa, 1991.

Devereaux, Mary Sue, ed. *Leaving School*. Prepared for Human Resources and Labour Canada, Minister of Supply and Services Canada, Ottawa, 1993.

Economic Council of Canada. *A Lot to Learn - Education and Training in Canada*. Ottawa, 1992.

Economic Council of Canada. *Second Annual Review: Towards Sustained and Balanced Economic Growth*. Queen's Printer, Ottawa, 1965.

Gregor, Alexander D. and Gilles Jasmin, eds. *Higher Education in Canada*. Department of the Secretary of State, 1992.

Hobden, Andrea. "How Can Canadians Compete Globally If Our Barriers to Education Continue?" *Toronto Star*, 1 November 1993.

"Inventing Our Future: An Action Plan for Canada's Prosperity." *Canadian Vocational Journal*. Fall 1992, p. 9-13.

"Looking for a Better System." *University Affairs*. May 1994, p. 14.

Lougheed, Tim and Ania Wasilewski. "The New Internationalism." *University Affairs*, March 1994, p. 6.

Martin, Rick. "Campus Controversy: Students Have Had Enough." *Globe and Mail* (Toronto). 19 January 1993.

"Measuring Results in the Schools." *Globe and Mail* (Toronto). 4 January 1993.

Morton, Desmond. "The Role of Universities in Economic Renewal." *Canadian Speeches: Issues of the Day*. March 1994, p. 60-63.

National Forum Secretariat. "A Statistical Portrait of Higher Education in Canada." *The Forum Papers 1987*, The Institute for Research on Public Policy, Halifax, 1988.

Paquet, Gilles and Max von Zur-Muehlen, eds. *Education Canada*. Canadian Higher Education Research Network, Ottawa, 1987.

Sale, Tim. "The Funding of Post-Secondary Education in Canada: Can the Dilemma be Resolved?" Working Paper No. 28, Economic Council of Canada, Ottawa, 1992.

"Science Survey: Scores Low Interest High." *University Affairs*, April 1990.

Statistics Canada. *Education in Canada: A Statistical Review for 1990-1991*. Catalogue 81-229, Ottawa, 1992.

Statistics Canada. *Financial Statistics of Education, 1988-89*. Catalogue 81-208, Ottawa, 1993.

Statistics Canada. *Perspectives on Labour and Income*. Catalogue 75-001E, Ottawa, Autumn 1992, Spring 1993.

Statistics Canada. *The Daily*. Catalogue 11-001E, Ottawa, 19 January 1993 and 16 November 1993.

Stewin, Leonard L. and Stewart J.H. McCann, eds. *Contemporary Educational Issues: The Canadian Mosaic*. Copp Clark Pitman, Toronto, 1993.

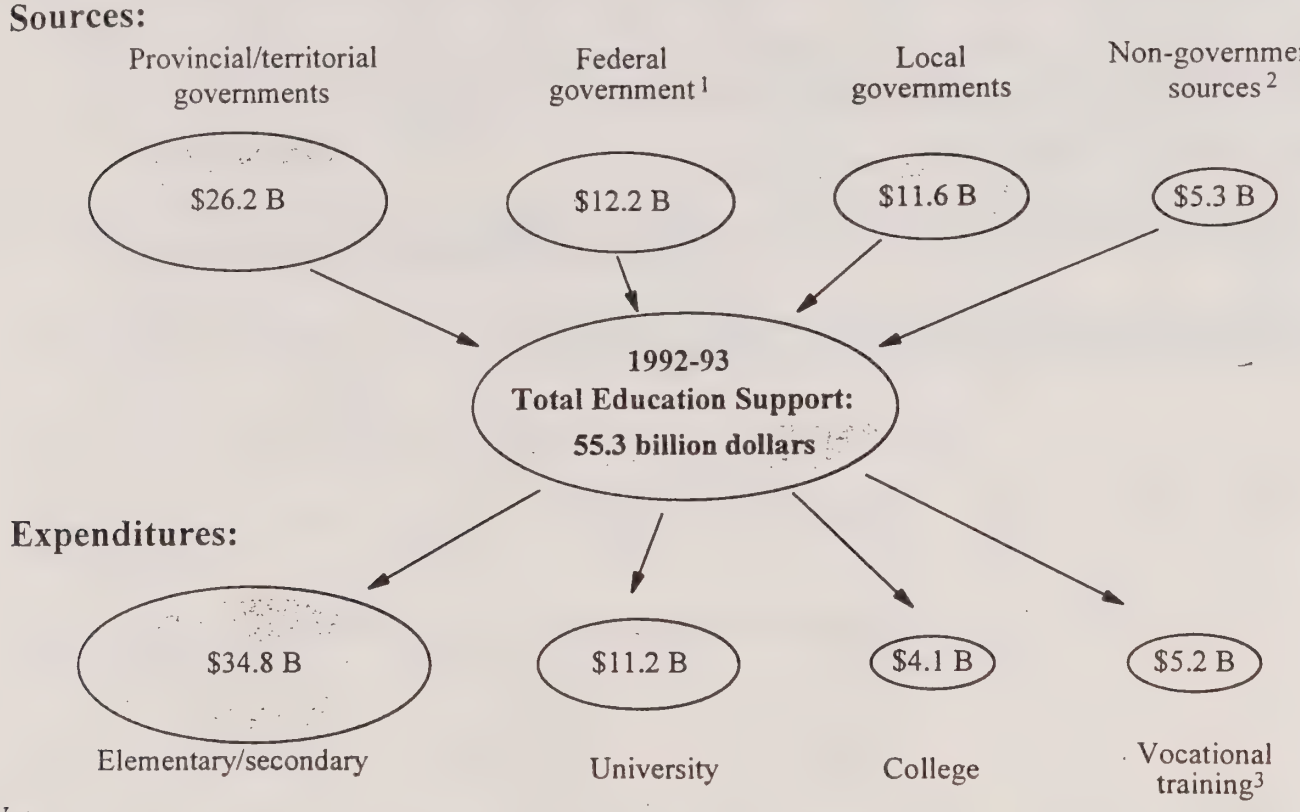
University Affairs. October 1993 and May 1994.

West, Edwin G. "Ending the Squeeze on Universities." *Policy Options*. November 1993, p. 4-8.

World Economic Forum. *World Competitiveness Report*. 1992.

APPENDIX

Chart 7.1 **The cost of education and training in Canada, sources and expenditures, 1992-93 (estimates)**



Note :

1 Federal support consists of fiscal transfers to provinces and territories for post-secondary education and official languages in education; funding for university research; financial assistance for students; and costs for federal responsibilities and programs.

2 Non-government sources include student fees, donations and investment income.

3 Vocational training expenditures cover trade/vocational programs offered by public and private schools, community colleges and institutes of technology, as well as federal and provincial training expenditures.

Source : Statistics Canada, adapted from Advance Statistics of Education 1993-94, Cat. 81-210, Tables 11 and 13.

Source: *Profile on Post-Secondary Education in Canada*, 1993 Edition, Human Resources Development Canada, Ottawa, 1994.


ACCO USA
WHEELING, ILLINOIS 60090
25072
50505 25072 1
LT. BLUE/BLEU/AZUL CLARO
70% RECYCLED FIBRE 50% POST-CONSUMER
% FIBRE RECYCLE 50% DECHETS DE CONSOMMATION
0% FIBRA RECICLADA 50% DESPUES DE CONSUMIR